Network Working Group
Request for Comments: 4613
Category: Informational

P. Frojdh
U. Lindgren
M. Westerlund
Ericsson

September 2006

Media Type Registrations for Downloadable Sounds for Musical Instrument Digital Interface (MIDI)

Status of This Memo

Copyright Notice

Abstract

This document serves to register a media type for Downloadable Sounds.

Table of Contents

1. Introduction

The present document seeks to register a media type for Downloadable Sounds (DLSes). The DLS format is used to define instruments for widely used wavetable synthesizers associated with the standards [DLS1, DLS2, MDLS]. DLSes and their associated standards are maintained and defined by two organizations, the Musical Instrument Digital Interface (MIDI) Manufacturers Association (MMA) and the Association of the Musical Electronics Industry (AMEI).

The media type defined here is needed to identify DLS files correctly when they are served over HTTP, included in multi-part documents, or used in other places where media types are used.

2. Security Considerations

The DLS format may contain audio, displayable text data, and modeling parameters (a.k.a. articulation parameters). In addition, the DLS format contains a so-called conditional chunk that is 'active' in the sense that it affects the execution of a DLS file parser. However, the DLS format does not currently define any scripting mechanism.

Clearly, it is possible to author malicious files that, for example, contain large amounts of data always blocked by a conditional statement; i.e., no synthesizer loads the instruments.

However, for DLS, clients can and usually do protect themselves against these kinds of attacks. A key point is that conditional chunks are optional, that is, a parser does not have to execute a conditional chunk. However, if a parser evaluates a conditional chunk, it is still possible to parse its content and draw to a conclusion as to whether it is usable for a particular synthesizer engine.

Note that selected metadata fields may include information partly intended to protect the media against unauthorized use or distribution. In this case, the intention is that alteration or removal of the data in the field would be treated as an offense under national agreements based on World Intellectual Property Organization (WIPO) treaties.

DLS have an extensible structure, making it theoretically possible to define metadata fields or media formats in the future that could be used to induce particular actions of the recipient, and thus that would present additional security risks. However, this type of capability is currently not supported in the referenced specifications.

There is no current provision in the DLS standard for encryption, signing, or authentication within the file formats.

3. IANA Considerations

The IANA has registered the media type audio/dls, as specified in Section 3.1. The registration uses the template present in [RFC4288].

3.1. Media Type for Downloadable Sounds

Type name:	audio
Subtype name:	dls
Required parameters:	None
Optional parameters:	'dls-type' A comma-separated list of the dls types (one or more) that the file content conforms to. The following values are specified: 0, 1, and 2 signify Downloadable Sounds Level 1.1b content, Downloadable Sounds Level 2.1 content, and Mobile Downloadable Sound content, respectively. All types that the content conforms to should be indicated. Further values (integers) may be specified in the future, and any unknown values shall be ignored. If the parameter is not specified, it corresponds to a value equal to 0; i.e., the content conforms to Downloadable Sound level 1.1b.
Encoding considerations:	DLS files are binary and should be transmitted in a suitable encoding without CR/LF conversion, 7-bit stripping etc.; base64 [RFC3548] is a suitable encoding.
Security considerations:	see the security considerations in Section 2 of RFC 4613.
Interoperability considerations:	This media type is for consumption by a MIDI player capable of utilizing downloadable sounds for its synthesizers. A general-purpose audio player will not be capable of utilizing the audio within the format without explicit support of the format.

Published specification:	Downloadable Sounds Level 1.1b [DLS1], Downloadable Sounds Level 2.1 [DLS2], and Mobile Downloadable Sounds [MDLS]. MMA specifications can be ordered from the MMA web site, www.midi.org.

Applications that use this media type: Multi-media

Additional information:

Magic number(s):	The ninth to twelfth bytes of the file must equal (in hexadecimal notation) 44, 4c, 53, and 20, respectively.
File extension(s):	.dls is declared at http://www.nist.gov/nics

Person & email address to contact for further information:
Ulf A. Lindgren,
ulf.a.lindgren@ericsson.com

Intended usage:	COMMON
Restrictions on usage:	None
Author:	Per Frojdh Ulf A. Lindgren Magnus Westerlund
Change controller:	MIDI Manufacturers Association http://www.midi.org info@midi.org

4. References

4.1. Normative References

[DLS1] "Downloadable Sounds Level 1.1b", MMA/AMEI specification v1.1b, Los Angeles, CA, USA, 2004.

[DLS2] "Downloadable Sounds Level 2.1", MMA/AMEI specification v1.0, Los Angeles, CA, USA, 2001.

[MDLS] "Mobile Downloadable Sounds 1.0", MMA specification v1.0, Los Angeles, CA, USA, 2004.

[RFC4288] Freed, N. and J. Klensin, "Media Type Specifications and Registration Procedures", BCP 13, RFC 4288, December 2005.

4.2. Informative References

[RFC3548] Josefsson, S., "The Base16, Base32, and Base64 Data Encodings", RFC 3548, July 2003.

Authors' Addresses

Per Frojdh
Ericsson AB
Ericsson Research
SE-164 80 Stockholm
Sweden

EMail: per.frojdh@ericsson.com

Ulf A. Lindgren
Ericsson AB
Ericsson Research
SE-417 56 Goteborg
Sweden

EMail: ulf.a.lindgren@ericsson.com

Magnus Westerlund
Ericsson AB
Ericsson Research
SE-164 80 Stockholm
Sweden

EMail: magnus.westerlund@ericsson.com

Full Copyright Statement

Intellectual Property

Acknowledgement

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).